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CANADA GOOSE HARVEST AND HUNTER ACTIVITY IN THE 4-COUNTY QUOTA ZONE DURING THE 1994 SEASON

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Abstract: The 1994 4-County Quota Zone (4CQZ) goose hunting season opened 3 December and closed 22 January. The goose season began 30 days after the opening of the southern zone for duck hunting. The established season length was 51 days (51 days in 1993) or when a quota of 39,800 geese was harvested with a daily bag limit of 2 Canada geese. The 4CQZ is assigned 55% of the statewide MVP and 15% of the non-MVP Canada goose harvest allocation. The statewide Canada goose harvest allocation was 61,300 in 1993 and increased 79% to 109,600 in 1994. A total of 25,956 Canada geese was harvested or 65% of the maximum allowable harvest. Ninety-two commercial clubs (80 in 1993) harvested 77% of the total harvest or 19,914 Canada geese. Goose hunters in Williamson/Jackson Counties accounted for 63% (16,461) of the total quota zone harvest, while 19% (4,891) of the harvest occurred in Union County and 18% (4,604) in Alexander County. Goose hunters spent 65,559 days afield (20% greater than 1993), and averaged 0.40 goose per trip (0.67 in 1993). Commercial clubs in Williamson/Jackson Counties reported the highest success rates (0.55), followed by Union and Alexander Counties with success rates of 0.52 and 0.39, respectively. A total of 802 Canada geese was harvested by 2,255 hunters on the Union County Public Hunting Area (UCPHA). Goose hunters (375) on the Horseshoe Lake Public Hunting Area (HSLPHA) harvested 75 geese, and 2,754 hunters harvested 642 geese on the public hunting area at Crab Orchard National Wildlife Refuge (CONWR). Success rates for the Union County, Horseshoe Lake and CONWR Public Hunting Areas were 0.36, 0.20, and 0.23, respectively. The 1994 mid-December MVP Canada goose count in the quota zone and Mississippi Flyway was 142,000 (50,100 in 1993) and 931,100 (843,700 in 1993), respectively. Major migrations of Canada geese occurred between 9-11 December (84,800) and 16-18 December (185,700). The population finally peaked at 294,100 (475,000 in 1993) in the quota zone on 9 January. The peak wintering population in southern Illinois and western Kentucky was 431,900 Canada geese (9 January) compared to 603,800 in 1993-94. Tail fans (n=1,746) collected from commercial pickers in Alexander and Williamson/Jackson Counties revealed an age ratio of 0.82 immatures/adult (1.79:1 in 1993). CONWR accounted for 37% (7.9 million) of the goose use-days (GUD) in southern Illinois. Horseshoe Lake (HSLCA) and Union County Conservation Areas (UCCA) accounted for 23% (4.9 million) and 17% (3.6 million) of the GUD, respectively. GUD on the wintering refuges in southern Illinois and western Kentucky increased 6% from 20.0 million in 1993-94 to 21.3 million in 1994-95. No significant losses of waterfowl to disease were observed on the wintering refuges in southern Illinois in 1994-95.

INTRODUCTION

Alexander, Jackson, Union, and Williamson Counties comprise the 4CQZ. Located in this region are three major Canada goose wintering areas. The most important and oldest wintering area is the HSLCA in Alexander County. The Department of Natural Resources (DNR) recognized the importance of Horseshoe Lake to Canada geese and established it as a refuge in 1927. Traditionally, the area records the largest amount of GUD in southern Illinois. However, in recent years a shift in refuge distribution is occurring as CONWR has been recording the largest amount of GUD. The HSLCA contains 9,550 acres and encompasses an ancient oxbow of the Mississippi River. Approximately 30 miles north of Horseshoe Lake is the 6,200 acre UCCA. The northern-most wintering refuge in the 4CQZ is CONWR, (44,000 acres) which is located approximately 35 miles northeast of UCCA in Jackson and Williamson Counties.

The quota zone system requires that all goose hunters hunting on licensed areas register and report their harvest daily. All commercial clubs (those receiving compensation for goose hunting) are required to apply for a license at a cost of \$15.00 per blind or pit. This system of hunter registration is recognized as one of the most intensive, efficient, and accurate methods of monitoring Canada goose harvest in areas where both geese and hunting pressure are heavily concentrated. The quota zone system has been in effect in southern Illinois since 1960, with only minor changes made in regulations through the years. Approximately 77% of the quota zone goose harvest in 1994 occurred on land licensed as commercial clubs.

Goose hunting regulations in the 4CQZ were amended in 1987 to allow three persons to occupy a pit or blind for taking or attempting to take Canada geese on commercial clubs. In the past, the number of hunters was restricted to two, except in those blinds where a licensed guide accompanied the hunters. Guide licensing by the DNR was eliminated as part of the 1987 legislation change. The number of hunters allowed per pit or blind increased from a maximum of three to five in 1993. In addition, the frequency of reporting harvest and hunter activity on commercial clubs decreased from twice per week to once per week. Beginning in 1994, reporting frequencies and methods were changed as a result of exceeding the quota in 1993.

METHODS AND MATERIALS

All landowners applying for a commercial goose license in the 4CQZ received a registration packet containing daily registration forms, club permits, administrative orders, reporting frequencies and self-addressed, postage paid envelopes. Commercial clubs submitted daily harvest registration forms twice per month and telephoned their harvest and hunter activity twice per week (Monday - Thursday and Friday - Sunday) using a toll-free telephone number throughout the season. Sound Response Corporation of Portland, Oregon was contracted to implement the telephone reporting system at a cost of \$0.50 per call. The zone harvest was updated at each interval by Waterfowl Program Staff at UCCA. All procedures in 1994 were the same as in 1993, including methods of estimating harvest and hunting pressure on outlying non-commercial areas by

using the mean percent harvest occurring on those areas from 1973-1981 (Thornburg and Estel 1983).

An automatic answering machine was maintained in the phone system at the UCCA office. Harvest information and results of the most recent aerial inventories were updated once per week as new information became available. Goose hunters, club operators and media representatives were able to get updated information on the progress of the 1994 quota zone goose hunting season.

Canada goose populations on wintering areas in the 4CQZ, Rend Lake and Ballard County, Kentucky were monitored by aerial inventories starting 26 October and ending 17 February. Flights were conducted at weekly intervals, weather permitting. Biologists with the DNR and personnel from CONWR conducted the inventories using the state's Cessna 337.

RESULTS

Population Status, Habitat and Migration Chronology

Population Status

The 1994 spring population survey conducted by the Ontario Ministry of Natural Resources (OMNR) revealed an estimated population of 838,148 ($\pm 184,062$ at 95% CI) Mississippi Valley Population (MVP) - Canada geese on the breeding grounds. This represented a 36% increase from the 1993 spring estimate of 617,814 and is just below the 1991-96 MVP Management Plan goal of 900,000 Canada geese (adults and non-breeders).

Habitat

Aerial surveys yielded estimates of 208,777 active nests ($\pm 47,273$ at 95% CI) in 1994 compared to 213,770 in 1993 (2.3% less). The 220,000 increase in spring population in 1994 with no significant increase in the number of nests is a result of excellent production in 1993. Therefore, many adults survived the fall-winter of 1993 while at the same time, 220,000 young geese were recruited into the 1994 adult population.

Production estimates for 1994 are comparable to the long-term averages. The projected fall flight for MVP Canada geese in 1994 was initially estimated at 1.26 million however, was revised to 1.19 million after banding results were analyzed (Tacha and Leafloor 1994). However, as a result of the MVP still below the spring population (900,000) and fall flight goals (1.2 million) in 1994, conservative harvest strategies were adopted which stabilized allocations and season lengths among MVP harvest states.

Migration Chronology

Canada geese began arriving at southern Illinois wintering refuges during the week of 18-24 September. The first aerial inventory was conducted on 26 October and revealed that 19,000 Canada geese (30,180 in 1993) were present in the 4CQZ. Canada goose numbers in the 4CQZ gradually increased from 19,000 in late

October to 57,200 by opening day (3 December). The first major migration of geese from Wisconsin occurred between 9-11 December, when the population in the 4CQZ increased from 57,200 to 142,000 (Table 1). Another major migration occurred 16-18 December when the population increased from 142,000 to 270,500. The goose population finally peaked after a small migration on 8 January at 294,100 on 9 January (Figure 1). The Canada goose population in southern Illinois and western Kentucky also peaked on 9 January (431,900) (Figure 2). Large numbers of Canada geese remained on the wintering refuges along with early arriving spring staging snow geese until late February when warm weather patterns initiated northward migrations to spring staging areas.

Canada goose numbers at CONWR peaked at 151,000 in 1994-95 (235,000 in 1993-94). HSLCA and UCCA reported peaks of 76,000 (205,000 in 1993-94) and 65,000 (104,000 in 1993-94), respectively. The 1994 mid-December MVP goose survey in the 4CQZ and Mississippi Flyway was 142,000 (50,100 in 1993) and 931,100 (843,700 in 1993).

GUD and percent totals at 5 refuges in southern Illinois and western Kentucky are shown in Table 2. GUD in southern Illinois and western Kentucky increased 6% from 20.0 million in 1993-94 to 21.3 million in 1994-95. In 1994-95, CONWR accounted for 7.9 million GUD (37% of the total), HSLCA accounted for 4.9 million GUD (23% of the total), UCCA accounted for 3.6 million GUD (17% of the total), Rend Lake accounted for 3.6 million GUD (17% of the total) and Ballard County, Kentucky 1.1 million GUD (5% of the total).

4CQZ Goose Season, Hunter Participation, Goose Harvest and Hunter Success

4CQZ Goose Season

The 1994 4CQZ goose hunting season opened 3 December and closed 51 days later on 22 January (Table 3). The goose season began 30 days after the opening of the southern zone for duck hunting which allowed hunters a 10-day overlap to harvest both ducks and geese. The Canada goose harvest allocation for Illinois increased 79% from 61,300 in 1993 to 109,600 in 1994. The 4CQZ annually receives 55% of the statewide MVP and 15% of the non-MVP Canada goose harvest allocation. The harvest quota assigned to the 4CQZ increased 30% from 30,600 in 1993 to 39,800 in 1994. Goose season length remained at 51 days in 1994. The daily bag limit for Canada geese was 2 in 1994. Shooting hours were extended during the last 3 days of the goose hunting season from 3 p.m. to sunset.

Hunter Participation

Goose hunters spent a total of 65,559 days afield during the 1994 season which was 20% greater than 1993 (Figure 3). A total of 35,019 hunters registered at commercial clubs in 1994 (25% greater than in 1993). An additional 5,009 hunters registered on the public hunting areas at Union County and CONWR (4% greater than 1993). An estimated 25,531 hunter-trips occurred on non-commercial areas in 1994 (19% greater than in 1993) (Whitton 1994). The average daily number of hunters in 1994 (1,285) was 20% greater

than in 1993 (1,067), despite season length being the same (51 days).

Commercial licenses were issued to 92 clubs in the quota zone in 1994 (15% greater than in 1993). Commercial clubs were the most numerous in Williamson/Jackson Counties (52), while clubs in Alexander and Union Counties numbered 27 and 13, respectively.

Williamson/Jackson Counties reported 51% of the hunter-trips on commercial clubs. Approximately 28% of the hunter-trips on commercial clubs occurred in Alexander County, while the remaining 21% occurred in Union County. Williamson/Jackson Counties had the greatest number of total hunter-trips (43,317) (17% greater than 1993) in the quota zone with 66%, followed by Alexander County with 18% (12,104) (20% greater than 1993) and Union County with 16% (10,138) (35% greater than 1993) (Table 4).

Hunter use and harvest on the public hunting areas in the quota zone are included in the commercial club totals. The HSLPHA ceased charging hunters a fee for the privilege of hunting in 1992. Therefore, the area is considered a non-commercial area. The remaining two commercial public hunting areas (Union County and CONWR) accounted for 12% (5% less than from 1993) of the hunting effort on commercial clubs in 1994. A total of 5,384 hunters registered on three public hunting areas associated with the major wintering refuges (5% greater than 1993). CONWR Public Hunting Area accounted for the most hunters (2,754). This represented 51% of the total hunting effort on public hunting areas in the 4CQZ. The Union County and Horseshoe Lake Public Hunting Areas registered 2,255 (42%) and 375 hunters (7%), respectively (Table 5).

Goose Harvest

A total of 25,956 Canada geese was harvested in the quota zone during the 1994 season (29% less than 1993) (Figure 4). This was 13,844 geese below the 39,800 Canada goose allocation. Incidental to the Canada goose harvest, 63 snow geese, 21 white-fronted geese and 48 other geese were harvested throughout the 4CQZ. Commercial clubs accounted for 77% of the total harvest or 19,914 Canada geese. Approximately 56% of the total harvest on commercial clubs occurred in Williamson/Jackson Counties (11,111), 22% in Union County (4,475) and 22% in Alexander County (4,328).

The three public hunting areas reported a harvest of 1,519 geese in 1994 (30% less than 1993). The UCPHA reported 53% of the goose harvest (802), while CONWR Public Hunting Area reported 42% of the goose harvest (642), and 5% at HSLPHA (75) (Table 5). The Canada goose harvest (1,444) on the two commercial public hunting areas in the 4CQZ represented 7% (no change from 1993) of the total commercial club harvest.

The 1994 goose harvest on the UCPHA (802) was 34% less than the 1988-92 average and 21% less than the harvest in 1993. The goose harvest at HSLPHA in 1994 (75) was 79% less than the 1988-92 average, but 78% greater than the harvest in 1993 (Table 6).

The average daily goose harvest for the 1994 season was 509 geese per day. This was 29% less than in 1993 (719) and 133%

greater than 1992 (218). The greatest harvest occurred during the 4-day reporting period 9-12 January, when 3,167 geese were harvested (Table 7). The lowest harvest (886) occurred during the 2-day (opening weekend) reporting period 3-4 December (Figure 5).

Williamson/Jackson Counties accounted for 63% (16,461) of the total goose harvest in 1994. Union County followed with 19% (4,891) and Alexander County 18% (4,604) (Table 8).

The estimated harvest on non-commercial lands in 1994 was 6,042 Canada geese or 23% of the total geese harvested. Approximately 89% of the non-commercial harvest occurred in Williamson/Jackson Counties (5,350), while 7% occurred in Union (416) and 4% in Alexander Counties (276).

The 1994 Illinois Waterfowl Hunter Questionnaire Survey revealed a statewide harvest estimate of 67,790 Canada geese (Anderson 1995). The federal harvest estimate indicated that 77,374 Canada geese were harvested statewide (Table 9) (Gamble 1995). The federal harvest estimate (11,852) for the 4CQZ was considerably less than the state estimate (25,956) which is derived from daily registration forms.

Tail fans collected from commercial pickers in 1994-95 (n=1,746) in Alexander and Williamson Counties revealed an age ratio of 0.82 immatures per adult (1.79 in 1993 and 0.99 in 1992) (Table 10). Tail fans analyzed from geese harvested at UCPHA and HSLPHA (n=878) revealed age ratios of 2.05 immatures per adult (Table 11). Age ratios from the UCPHA and HSLPHA in 1994 were at or slightly above the long-term average (Table 12). Collectively, tail fans (n=2,624) revealed an age ratio of 1.10 immatures per adult (1.98 in 1993).

Hunter Success

Success rates for Canada goose hunters on commercial clubs in the quota zone decreased from 0.85 goose per trip in 1993 to 0.50 in 1994 (Table 13). Commercial clubs in Williamson/Jackson Counties reported the highest success rates (0.55), while commercial clubs in Union and Alexander Counties reported success rates of 0.52 and 0.39, respectively (Figure 6).

The UCPHA reported the highest success rate (0.36) on public hunting areas in 1994 (Table 14). The public hunting areas at CONWR and Horseshoe Lake reported success rates of 0.23 and 0.20, respectively (Table 15).

DISCUSSION

Timely rains occurred throughout the summer months which resulted in excellent production of crops and moist-soil plants on southern Illinois refuges. Despite mild weather conditions throughout the fall, measurable Canada goose migrations occurred between 18-24 September, 9-11 December, 16-18 December and 8-9 January. GUD increased at the northern wintering refuges (Rend Lake and CONWR) and decreased at southern wintering refuges (UCCA, HSLCA and Ballard County, KY) in southern Illinois and western

Kentucky. Peak numbers of Canada geese were below average, most likely a result of large numbers of geese wintering in upstate Illinois.

Overall, the Canada goose harvest in Illinois (67,790) was considerably below the statewide allocation of 109,600 Canada geese. No detectable disease losses of waterfowl were observed on the wintering refuges in southern Illinois in 1994-95.

The results of the MVP Canada goose spring population survey increased significantly from 1993 which revealed that despite high harvests in 1993, large numbers of young geese were recruited into the adult population in 1994. Production estimates in 1994 were comparable to the long-term average. Harvest strategies remained conservative in 1994 in order to reach MVP population goals which are intended to liberalize harvest allocations in 1995.

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Table 1. Canada goose populations on wintering areas throughout the fall and winter of 1994-95.

Date	Ballard Co. ¹	Horseshoe Lake	Union Co.	Crab Orchard	Rend Lake	Campbell Pond	Carlyle Lake	Cache River	Burning	
									Star Mine	Total ²
10-26-94	700	10,000	2,500	5,000	700	500	50	0	1,000	20,450
11-01-94	800	12,000	3,000	7,000	2,600	0	--	0	3,500	28,900
11-07-94	1,000	12,000	6,000	14,000	1,500	0	0	0	4,500	39,000
11-21-94	6,000	16,000	7,000	12,000	1,000	500	0	50	300	42,850
11-28-94	2,000	21,000	8,000	28,000	7,000	0	0	0	200	66,200
12-12-94	13,200	40,000	32,000	61,000	35,000	1,500	2,000	100	7,500	199,500
12-19-94	13,200	67,000	56,000	135,000	65,000	2,500	3,500	750	10,000	360,650
12-27-94	15,600	65,000	60,000	116,000	70,000	400	4,500	300	3,200	351,300
01-03-95	24,000	62,000	65,000	105,000	55,000	2,000	2,500	50	8,000	343,850
01-09-95	36,000	76,000	62,000	151,000	80,000	600	0	400	4,500	431,900
01-23-95	18,600	52,000	48,000	108,000	28,000	1,500	19,000	2,000	3,500	338,400
01-30-95	13,500	48,000	33,000	65,000	33,000	4,500	12,000	1,000	13,000	272,200
02-17-95	19,000	68,000	38,000	58,000	32,000	3,500	22,000	3,500	11,000	322,500

¹ Includes Swan Lake, KY.

² Includes Vandalia Lake, Keck's Marsh and Ten Mile Creek.

Table 2. Total goose use-days and percent total at 5 refuges in southern Illinois and western Kentucky in 1994-95.

Week	Union County		Horseshoe Lk.		Crab Orchard		Rend Lake		Ballard County		Total	
	Goose Use	%	Goose Use	%	Goose Use	%	Goose Use	%	Goose Use	%	Goose Use	%
	Days		Days		Days		Days		Days		Days	
10-26-94	15,000	13	60,000	53	30,000	26	4,200	4	4,200	4	113,400	
11-01-94	18,000	12	72,000	47	42,000	28	15,600	10	4,800	3	152,400	
11-07-94	84,000	17	168,000	35	196,000	41	21,000	4	14,000	3	483,000	
11-21-94	49,000	17	112,000	38	84,000	28	8,000	3	42,000	14	295,000	
11-28-94	112,000	12	294,000	32	392,000	42	98,000	11	28,000	3	924,000	
12-12-94	56,000	12	147,000	32	196,000	42	49,000	11	14,000	3	462,000	
12-19-94	448,000	17	536,000	20	1,080,000	40	520,000	19	104,000	4	2,688,000	
12-27-94	420,000	19	455,000	20	812,000	36	490,000	22	84,000	4	2,261,000	
01-03-95	390,000	21	372,000	20	630,000	34	330,000	18	120,000	7	1,842,000	
01-09-95	868,000	15	1,064,000	19	2,114,000	38	1,120,000	20	448,000	8	5,614,000	
01-23-95	336,000	19	364,000	20	756,000	43	196,000	11	126,000	7	1,778,000	
01-30-95	594,000	18	864,000	26	1,170,000	35	594,000	18	99,000	3	3,321,000	
02-17-95	266,000	18	476,000	33	406,000	28	224,000	16	70,000	5	1,442,000	
Total	3,656,000	17	4,984,000	23	7,908,000	37	3,669,800	17	1,158,000	5	21,375,800	

Table 3. Annual 4-County Quota Zone goose season statistics, 1974-1994.

Year	Quota Size	Season Length	Date Open	Date Closed	Harvest	Percent Success Rate	Pop. Peak	Hunter Use-Days	Comm. Clubs	Free Permits
1974	22,000	38	11/25/74	01/01/75	24,673	49	217,000	49,971	60	230
1975	22,000	30	11/23/75	12/23/75	25,075	57	180,000	44,310	58	239
1976	22,000	27	11/22/76	12/18/76	25,865	59	316,000	44,080	61	296
1977	29,000	44	11/21/77	01/03/78	30,747	53	405,000	57,472	72	347
1978	40,000	69	11/13/78	01/20/79	40,490	57	253,000	70,983	146	290
1979	29,000	70	11/09/79	01/17/80	29,193	42	248,000	69,414	137	307
1980	27,000	31	11/03/80	12/03/80	27,835	68	220,000	40,888	113	332
1981	24,000	50	11/09/81	12/28/81	25,328	44	180,000	56,964	109	358
1982	17,500	40	11/08/82	12/17/82	17,863	42	166,000	42,432	106	---
1983	17,500	35	11/14/83	12/18/83	18,164	44	207,000	41,124	101	---
1984	17,500	25	11/12/84	12/06/84	14,607	46	272,000	31,515	92	---
1985	17,500	31	11/11/85	12/11/85	21,767	58	245,000	37,820	89	---
1986	24,000	42	11/17/86	12/28/86	25,858	51	239,000	50,663	97	---
1987	26,300	50	11/16/87	01/04/88	18,585	31	492,000	60,804	99	---
1988	37,000	50	11/21/88	01/09/89	39,332	56	560,000	70,460	95	---
1989	51,750	56	11/20/89	01/14/90	42,254	54	731,000	78,699	104	---
1990	71,100	70	11/10/90 11/19/90	11/12/90 01/24/91	31,319	39	540,000	80,885	124	---
1991	72,400	84	11/09/91	01/31/92	26,403	38	350,000	70,210	127	---
1992	39,500	79	11/14/92	01/31/93	17,255	30	372,000	57,877	107	---
1993	30,600	51	11/27/93	01/16/94	36,679	67	475,000	54,437	80	---
1994	39,800	51	12/03/94	01/22/95	25,956	40	294,100	65,559	92	---
20-yr. Avg.	32,773	49	-----	-----	27,029	49	337,225	56,330	100	---

Table 4. Hunter-trips and harvest of Canada geese in the 4-County Quota Zone during the 1994 season.

	Number of Permits Issued	Hunter Trips	Percent By Permit	Percent By Counties	Harvest	Percent By Permit	Percent By Counties	Percent Success Rate
<u>Alexander County (Horseshoe Lake)</u>								
Licensed Clubs	27	11,136	92		4,328	94		39
Other Areas		968 12,104	8 100	18	276 4,604	6 100	18	29 38
<u>Union County</u>								
Licensed Clubs	13	8,533	84		4,475	91		52
Other Areas		1,605 10,138	16 100	16	416 4,891	9 100	19	26 48
<u>Williamson/Jackson Counties (Crab Orchard NWR)</u>								
Licensed Clubs	52	20,359	47		11,111	67		55
Other Areas		22,958 43,317	53 100	66	5,350 16,461	33 100	63	23 38
Grand Total	92	65,559		100	25,956		100	40

¹ Licensed clubs are those areas that charge a daily fee for hunting and areas covered by lease or other monetary agreement. Number of hunter trips and harvest are reported directly by daily registration of hunters.

² Other areas represent all other areas where goose hunting occurs. In 1982, the free permit was eliminated and hunters were no longer required to register to hunt on free areas. Number of hunter-trips and harvest were estimated using a 9-year mean percent harvest and percent hunter-trips occurring on free areas in each of the counties in past years.

Table 5. Contribution of public hunting areas to the hunting effort and harvest of Canada geese during the 1994 season.

County	Hunter Trips	Percent of County Commercial Club Total	Harvest (%)	Percent of County Commercial Club Total	Percent Success Rate
Horseshoe Lake ¹	375	-----	75 (5)	-----	20
Union ²	2,255	26.4	802 (53)	17.9	36
Williamson/Jackson ²	2,754	13.5	642 (42)	5.8	23
All Counties	5,384	17.3	1,519	9.2	28

¹ Horseshoe Lake Public Hunting Area is a non-commercial area.

² Union County and Crab Orchard NWR Public Hunting Areas are licensed clubs.

Table 6. Comparison of the 1994 goose season on the Union County and Horseshoe Lake Public Hunting Areas with the 1993 goose season and the 1988-1992, 5-year average.

	<u>Union County Public Hunting Area</u>		<u>Horseshoe Lake Public Hunting Area</u>	
	5-Year Avg. (88-92)	1993	1994	5-Year Avg. (88-92)
Percent of Total County Hunters	22	27	26	7
Percent of Total County Harvest	17	19	18	3
Number of Hunters	3,047	2,060	2,255	1,412
Average Number Hunters Per Day	54	52	52	28
Harvest	1,223	1,012	802	354
Percent Success Rate	41	49	36	21
				28
				20
				375
				9
				75
				42
				28
				20

Table 7. Canada goose harvest in the 4-County Quota Zone throughout the 1994 season.

Date	Canada Goose Harvest						Number Geese Harvested Per Report Period	Total Goose Harvest in Quota Zone
	Alexander		Union		Will./Jackson			
	Hunters	Geese	Hunters	Geese	Hunters	Geese		
12-04-94	600	123	275	42	2,064	721	886	886
12-08-94	416	137	400	106	1,917	665	908	1,794
12-11-94	645	202	458	122	2,232	729	1,053	2,847
12-15-94	508	196	437	212	2,394	1,241	1,649	4,496
12-18-94	789	316	565	293	2,726	1,040	1,649	6,145
12-22-94	710	452	686	526	2,836	1,514	2,492	8,637
12-25-94	455	345	379	291	2,089	1,130	1,766	10,403
12-29-94	1,117	263	852	207	4,049	1,339	1,809	12,212
01-01-95	993	357	781	336	3,249	905	1,598	13,810
01-05-05	866	267	667	257	3,051	670	1,194	15,006
01-08-95	1,138	401	944	539	3,200	1,087	2,027	17,031
01-12-95	862	521	918	705	3,509	1,941	3,167	20,198
01-15-95	1,051	386	962	435	3,494	1,461	2,282	22,480
01-19-95	846	430	832	542	3,209	1,055	2,027	24,507
01-22-95	1,108	208	1,002	280	3,300	961	1,448	25,956
Total	12,104	4,604	10,158	4,893	43,319	16,459	25,956	25,956

¹ Includes harvest on non-commercial areas.

Table 8. Total harvest of Canada geese by county in the 4-County Quota Zone, 1991-1994.

County	1991		1992		1993		1994	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Alexander	7,026	27	4,270	25	7,046	19	4,604	18
Union	5,650	21	3,477	20	5,285	15	4,891	19
Williamson/Jackson	<u>13,727</u>	<u>52</u>	<u>9,508</u>	<u>55</u>	<u>24,348</u>	<u>66</u>	<u>16,461</u>	<u>63</u>
Total	26,403	100	17,255	100	36,679	100	25,956	100

Table 9. Canada goose harvest in Illinois, 1974-1994.

Statewide Harvest Obj.	Season Lgth. Quota Z./Upstate	4-Co. Quotas		Statewide Harvest		Quota Z. Harvest		Upstate Harvest (1,000s)	
		Quota Z./Upstate (1,000s)	Fed. Est./State Est. (1,000s)	Fed. Est./State Est. (1,000s)	Harvest (1,000s)	Fed. Est. / State Est.	Harvest (1,000s)	Fed. Est. / State Est.	Harvest (1,000s)
1974	28,000	38	70	22.0 (80) ^a	47.1		24.7 (52) ^b	22.4 (48)	
1975	28,000	30	70	22.0 (80)	44.8		25.1 (56)	19.7 (44)	
1976	28,000	27	70	22.0 (80)	53.7		25.9 (48)	27.8 (52)	
1977	35,000	44	70	29.0 (80)	76.6		30.7 (40)	45.9 (60)	
1978	50,000	69	70	40.0 (80)	118.7		40.5 (34)	78.2 (66)	
1979	35,000	70	70	29.0 (80)	69.0		29.2 (42)	39.8 (58)	
1980	33,000	31	70	27.0 (80)	57.7		27.8 (48)	29.9 (52)	
1981	30,000	50	50	24.0 (80)	51.5	44.3	25.3 (49)	26.2 (51)	19.0 (42) ^c
1982	27,000	40	40	17.5 (65)	27.2	29.6	17.9 (66)	9.3 (34)	11.7 (40)
1983	27,000	35	40	17.5 (65)	38.8	31.4	18.2 (44)	23.4 (56)	13.2 (42)
1984	27,000	25	20	17.5 (65)	31.0	23.1	14.6 (47)	16.4 (53)	8.5 (37)
1985	27,000	31	20	17.5 (65)	36.9	37.4	21.8 (59)	15.1 (41)	15.6 (42)
1986	48,000	42	40	24.0 (50)	48.9	47.2	25.9 (53)	23.0 (47)	21.4 (45)
1987	52,500	50	40	26.3 (50)	45.7	36.1	18.6 (41)	27.1 (59)	17.5 (48)
1988	74,000	50	50	37.0 (50)	91.0	74.8	39.3 (43)	51.7 (57)	33.2 (44)
1989	103,500	56	60	51.7 (50)	95.6	94.3	42.3 (44)	53.3 (56)	49.1 (52)
1990	142,200	70	70	71.1 (50)	93.7	70.0	31.3 (33)	62.4 (67)	38.7 (55)
1991	144,800	84	90	72.4 (50)	95.4	95.7	26.4 (28)	69.0 (72)	69.3 (72)
1992	79,000	79	79	39.5 (50)	76.7	60.0	17.2 (22)	65.8 (78)	42.7 (72)
1993	61,300	51	46	30.6 (50)	94.8	93.3	36.6 (39)	76.5 (81)	56.7 (61)
1994	109,600	51	51	39.8 (55-15) ^d	77.4	67.8	25.9 (38)	65.5 (85)	41.8 (62)
20-yr.									
Avg.	58,070	49	56	32.7	66.2	57.5	27.1	41.3	31.2

^a Percent of statewide harvest objective.^b Percent of federal estimate of statewide harvest.^c Percent of state estimate of statewide harvest.^d 4-County Quota Zone receives 55% of statewide MVP allocation and 15% non-MVP.

Table 10. Age ratio in the Illinois Canada goose harvest during the 1994 season. Data gathered from tail fans (n=1,746) collected throughout the season from commercial pickers in Alexander, Jackson and Williamson counties.

Area	Immatures	Adults	Ratio
Alexander County	508	595	0.85:1
Williamson/Jackson Counties	279	364	0.76:1
Total	787	959	0.82:1

Table 11. Age ratio in the Canada goose harvest (n=878) on the Union County and Horseshoe Lake Public Hunting Areas during the 1994 season.

	Union County Age Ratio/Sample Size (546 Im./257 Ad.)	Horseshoe Lake Age Ratio/Sample Size (45 Im./30 Ad.)
Dec. 03 - Dec. 04	1.9:1/23	0.0:0/0
Dec. 05 - Dec. 11	3.0:1/48	0.0:0/0
Dec. 12 - Dec. 18	2.0:1/72	2.0:1/3
Dec. 19 - Dec. 25	2.5:1/77	2.0:1/6
Dec. 26 - Jan. 01	1.8:1/105	0.0:1/4
Jan. 02 - Jan. 08	2.5:1/189	2.3:1/10
Jan. 09 - Jan. 15	1.7:1/168	2.2:1/16
Jan. 16 - Jan. 22	2.2:1/121	1.7:1/36
Total 42-Day Season	2.1:1/803	1.5:1/75

Table 12. Age ratios, expressed as immatures per adult, among Canada geese harvested on the Horseshoe Lake and Union County Public Hunting Areas, 1965 to 1994.

Year	Horseshoe Lake	Union County
1965	---	3.7
1966	1.1	2.6
1967	0.8	2.6
1968	1.2	2.2
1969	0.9	1.2
1970	0.9	3.4
1971	1.4	2.8
1972	0.8	1.1
1973	0.8	1.6
1974	1.8	2.5
1975	2.6	4.1
1976	2.5	2.7
1977	1.7	1.3
1978	1.2	1.2
1979	---	2.8
1980	3.2	4.5
1981	2.6	2.2
1982	1.3	2.7
1983	1.0	0.9
1984	2.6	3.2
1985	1.7	1.8
1986	1.4	1.3
1987	0.9	1.0
1988	2.0	1.6
1989	1.5	1.2
1990	0.4	0.7
1991	1.0	1.4
1992	0.5	1.1
1993	1.8	2.3
1994	1.5	2.1
30-Year Avg.	1.47	2.13

Table 13. Percent success rates for Canada goose hunters on commercial clubs in the 4-County Quota Zone 1985-1994.

County	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Alexander	59	56	31	62	38	59	35	38	71	39
Union	58	69	31	66	71	54	46	36	77	52
Williamson/Jackson	56	60	45	73	66	54	52	42	95	55
All Counties	58	61	36	67	65	46	45	36	85	50

Table 14. Hunter use, harvest and hunter success on the Union County Public Hunting Area 1975-1994.

Year	No. Days Hunted	Number Hunters	Average Number Hunters Per Day	Geese Harvested	% Success Rate
1975	30	2,489	96	2,292	92
1976	27	2,302	99	1,832	80
1977	44	3,045	82	962	32
1978	69	4,998	83	3,441	69
1979	70	5,524	81	2,800	51
1980	31	2,681	86	2,325	87
1981	47	3,647	78	1,927	53
1982	34	2,327	68	1,098	47
1983	35	2,269	76	1,074	47
1984	21	1,696	81	735	43
1985	26	2,073	80	969	47
1986	33	2,628	80	1,052	40
1987	39	2,446	63	391	16
1988	39	2,618	65	1,664	64
1989	45	2,782	62	1,318	47
1990	64	3,644	57	1,467	40
1991	81	3,571	44	1,062	30
1992	65	2,618	40	605	23
1993	44	2,920	73	1,500	51
1994	43	2,255	52	802	36
20-Yr. Avg.	44	2,926	72	1,465	50

Table 15. Hunter use, harvest and hunter success on the Horseshoe Lake Public Hunting Area 1974-1993.

Year	No. Days Hunted	Number Hunters	Average Number Hunters Per Day	Geese Harvested	% Success Rate
1975	30	2,373	91	960	40
1976	27	2,154	94	562	26
1977	44	2,439	66	678	28
1978	69	3,381	56	1,457	43
1979	70	2,514	37	434	17
1980	31	1,427	46	1,194	84
1981	47	1,986	42	494	25
1982	34	1,097	32	146	13
1983	35	1,153	38	374	32
1984	21	1,070	51	404	38
1985 ^a	20	806	40	167	21
1986	33	1,382	42	367	27
1987	39	1,191	31	196	16
1988	39	1,714	43	597	35
1989	45	2,191	49	766	35
1990 ^a	58	1,406	24	184	13
1991	81	1,005	12	164	16
1992	65	746	11	61	08
1993	41	335	8	42	12
1994	43	375	9	75	20
20-Yr. Avg.	46	1,673	45	542	30

^a Horseshoe Lake Public Hunting Area closed due to flooding from Nov. 21-29, 1985 and Jan. 3-8, 1991.

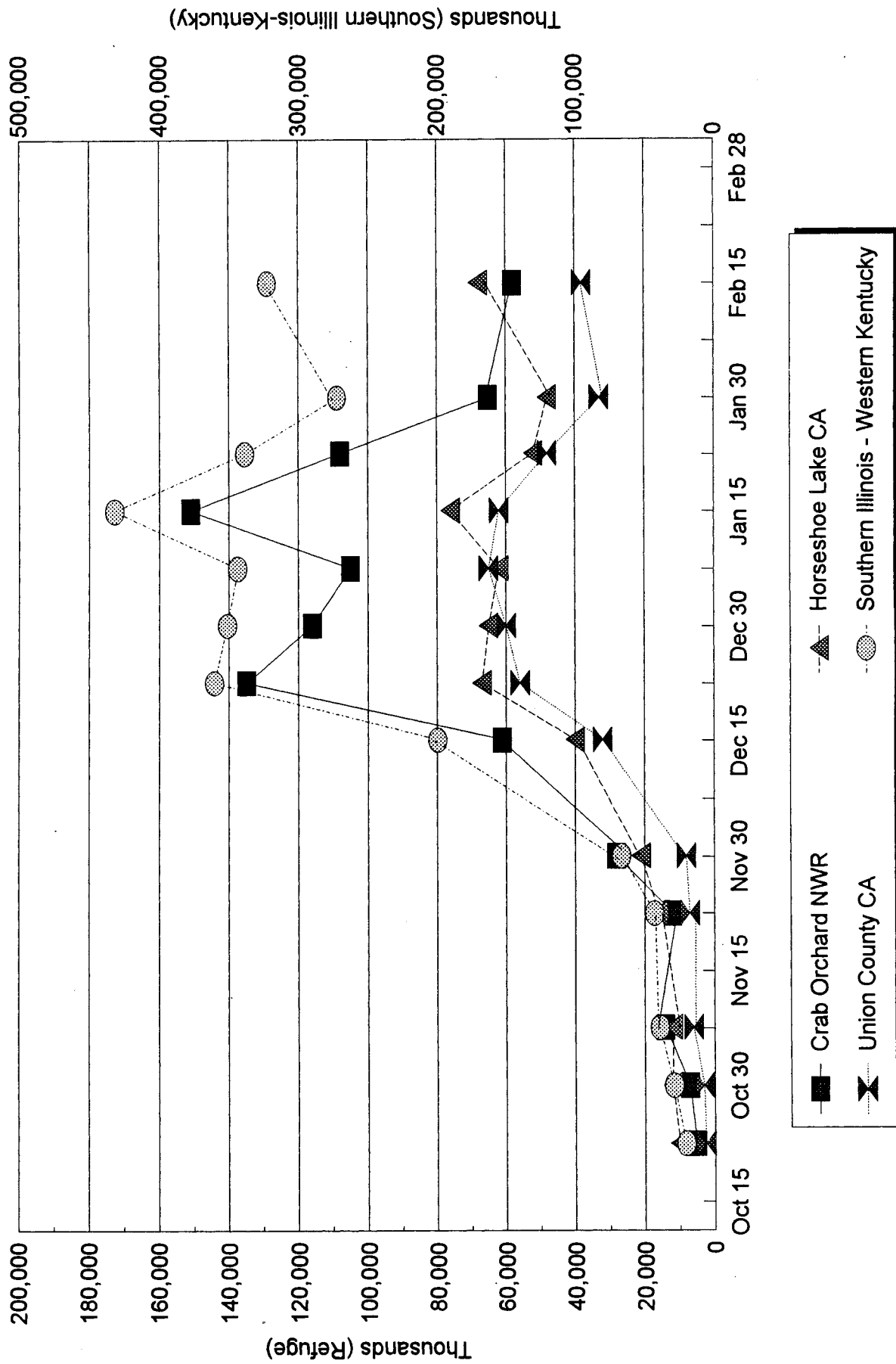


Figure 1. Numbers of Canada geese on three refuges in the 4-County Quota Zone and in southern Illinois and western Kentucky during fall and winter, 1994-95.

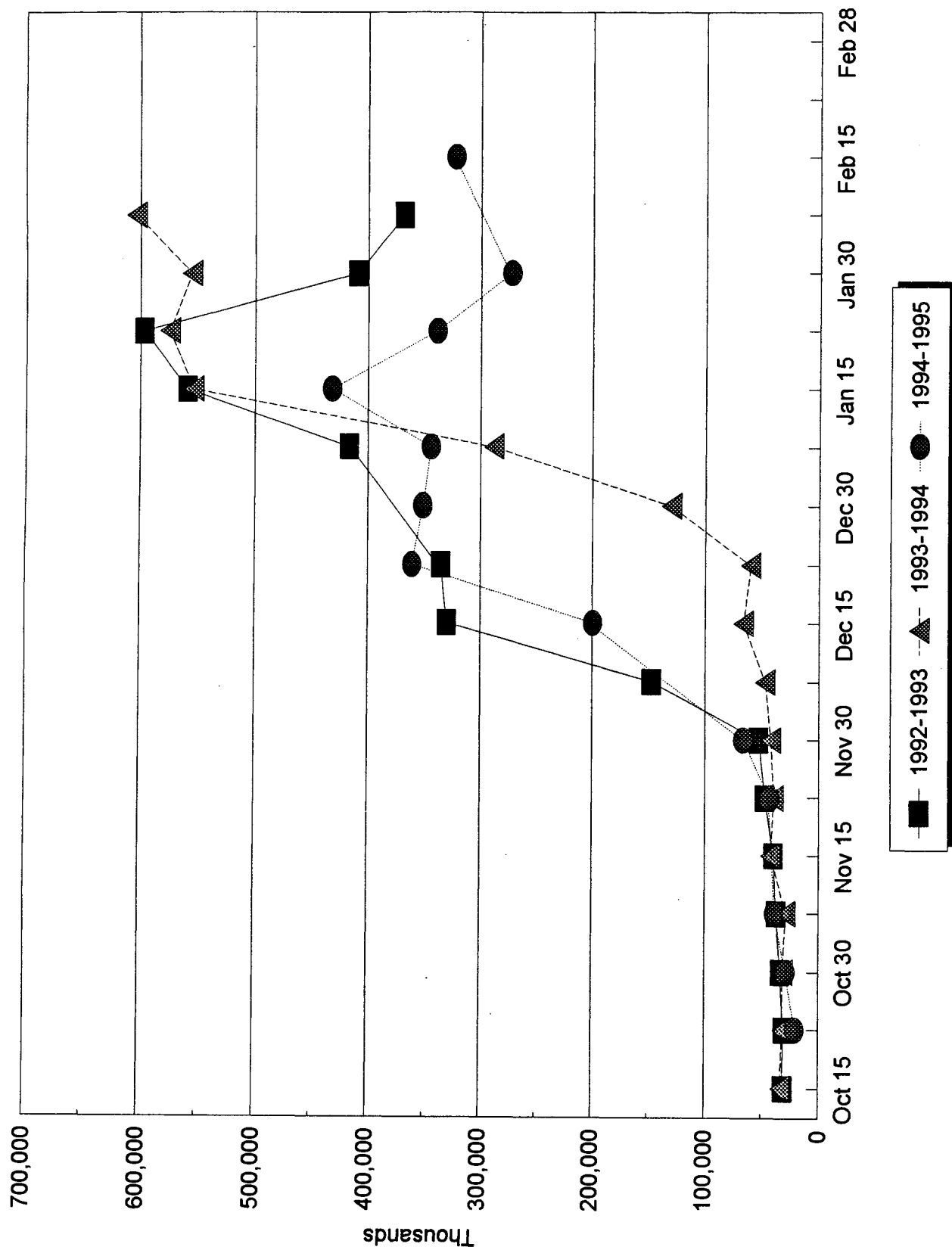


Figure 2. Number of Canada geese in southern Illinois and Western Kentucky during fall and winter, 1992-1995.

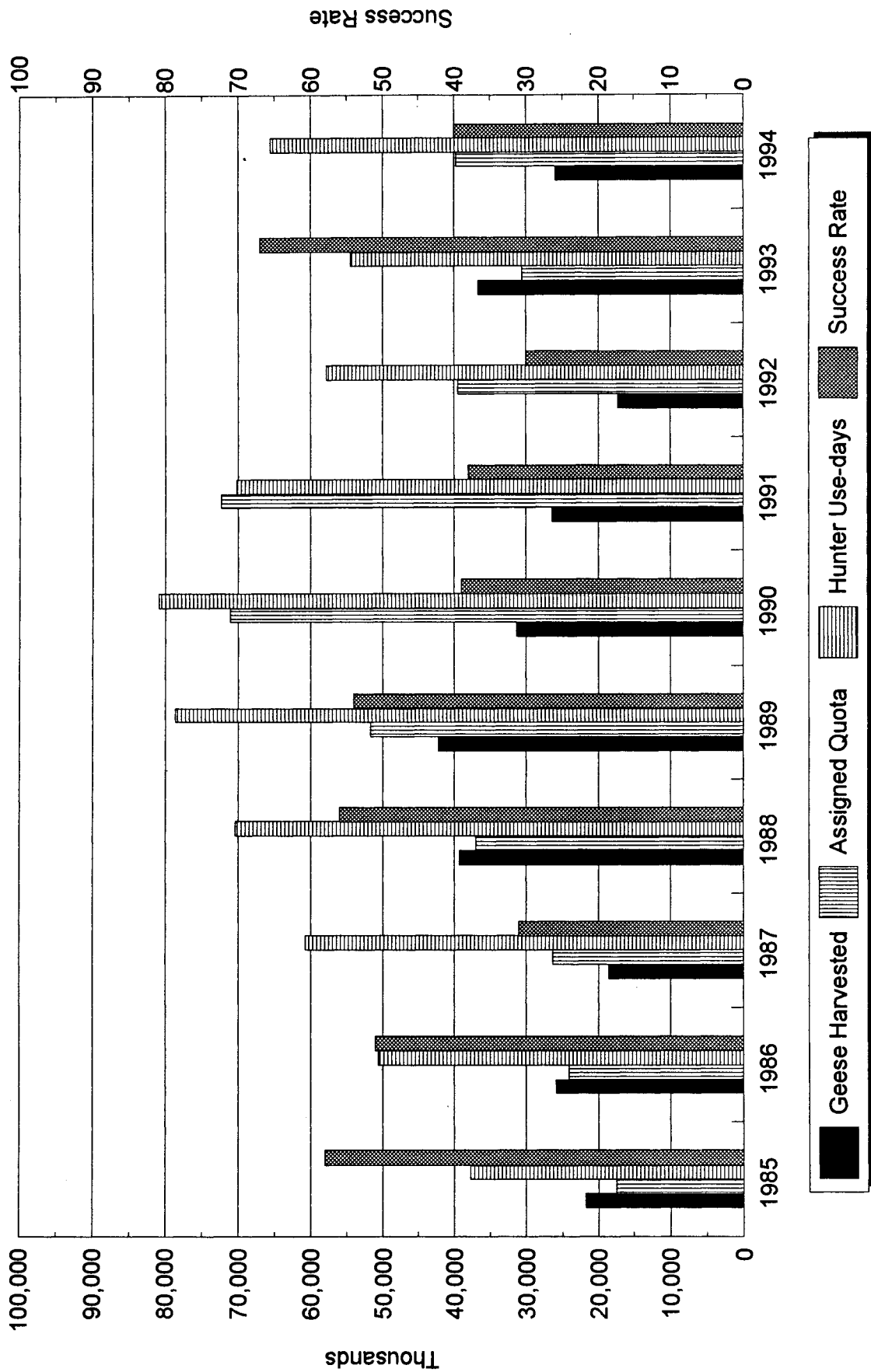


Figure 3. Number of geese harvested, assigned quota, hunter use-days and success rate in the 4-County Quota Zone, 1985-1994.

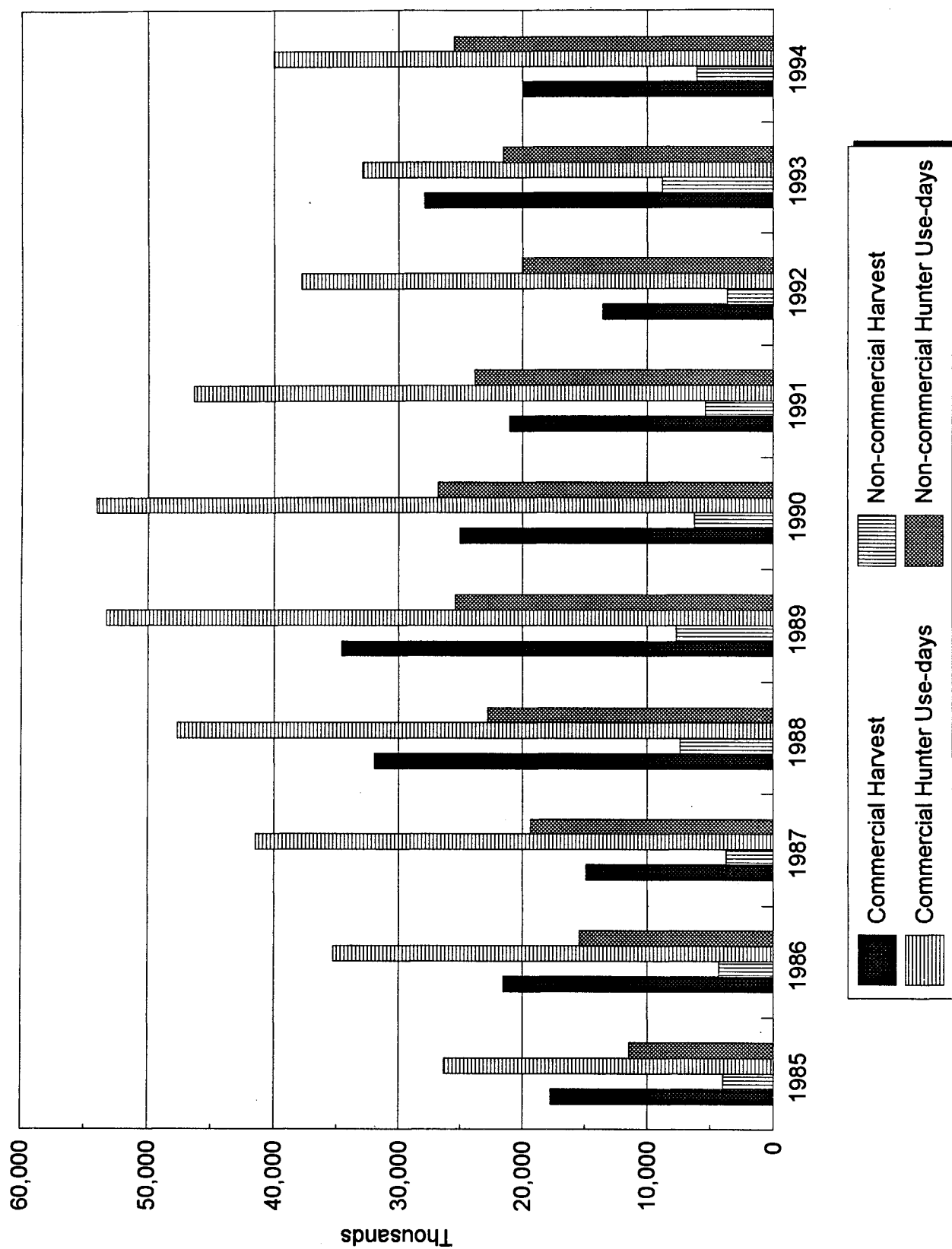


Figure 4. Goose harvest and hunter use-days on commercial and non-commercial areas in 1985-1994.

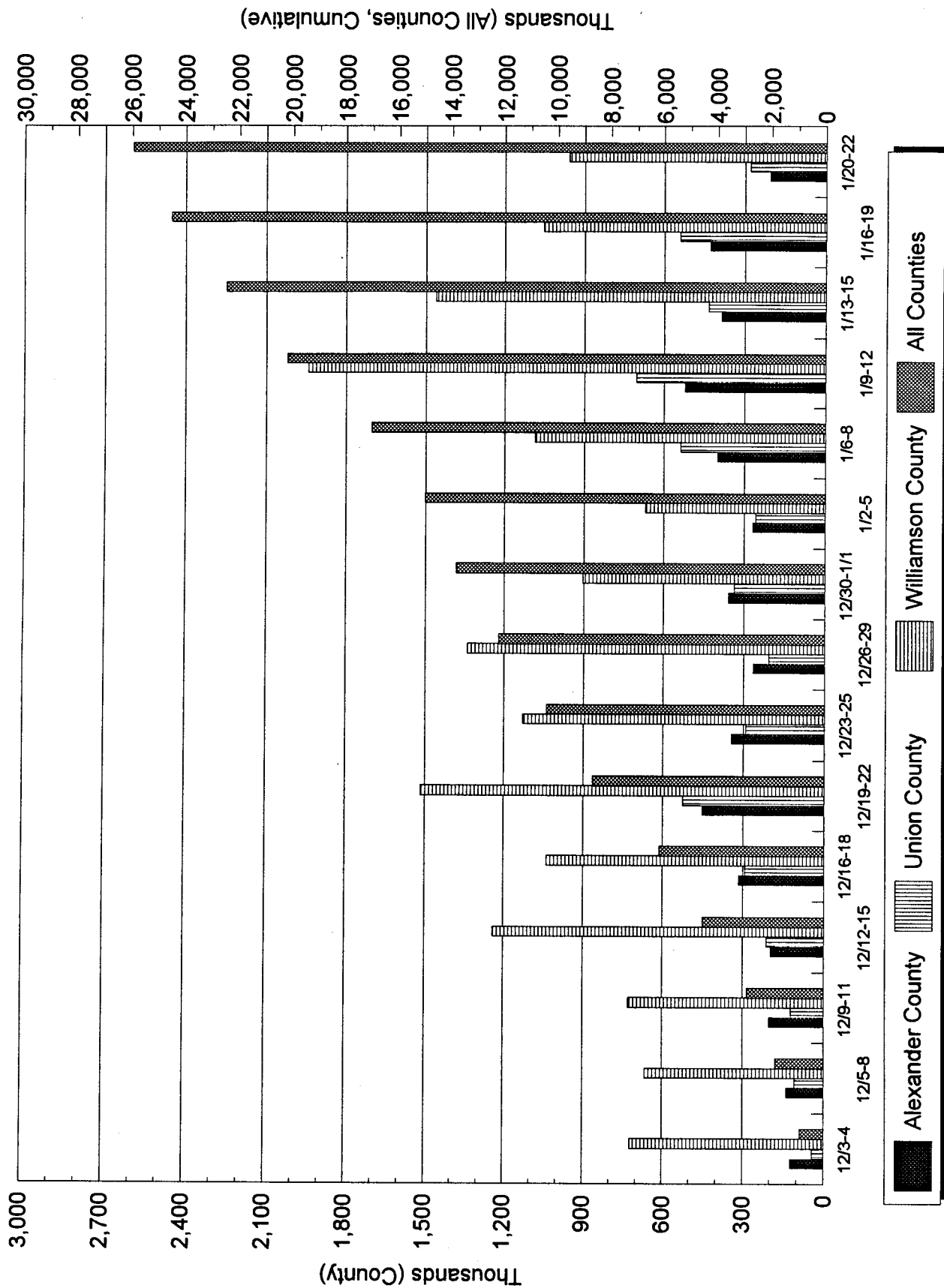


Figure 5. Number of geese harvested per weekly reporting period by county in the 4-County Quota Zone, 1994-95.

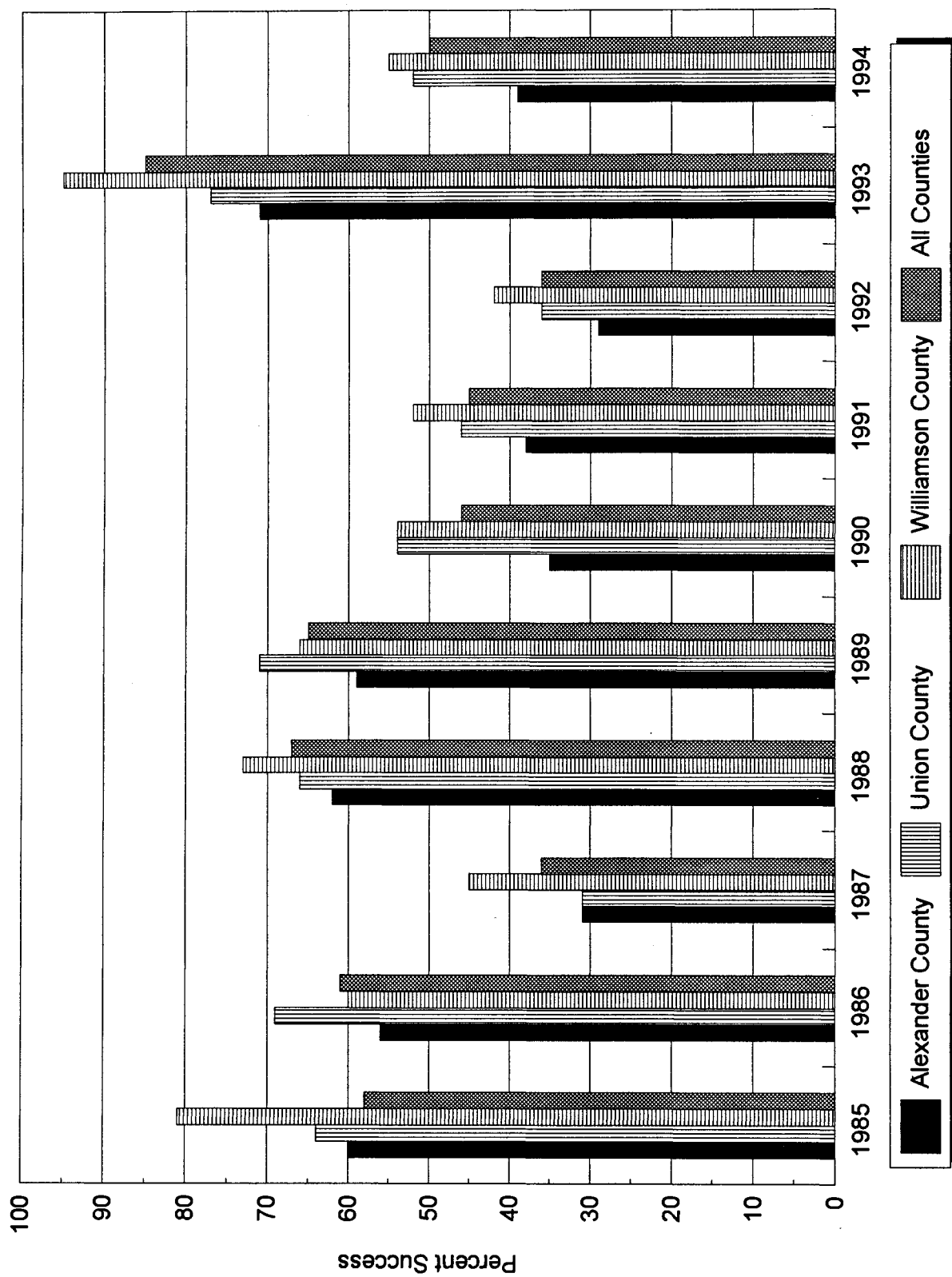


Figure 6. Success rates for Canada goose hunters on commercial clubs in the 4-County Quota Zone, 1985-1994.